



Comments and Responses on KCPL's Iatan Prevention of Significant Deterioration (PSD) New Source Review Permit Project Number 2005-05-062

This document responds to comments made to the PSD draft permit. The Department of Natural Resources' Air Pollution Control Program responded to comments during the public notice period. The department appreciates everyone's participation in the public process associated with this project. However, some comments received were in relation to items the Air Pollution Control Program has no authority to change or modify.

In some cases, comments have been summarized or paraphrased for the sake of clarity. All comments received are available on our website at:

<http://www.dnr.mo.gov/alpd/apcp/PermitPublicNotices.htm>

The numbers of Special Conditions from the draft permit may have changed. The numbers referenced in the response reflect the final Special Condition numbering.

The following comments were submitted to the Air Pollution Control Program by the Environmental Protection Agency (EPA), Region VII:

In a letter dated December 5, 2005 EPA Region VII submitted comments pertaining to the draft prevention of significant deterioration (PSD) permit. The Air Pollution Control Program responds to the EPA comments as follows:

Comment: NSPS Applicability

- 1) *"The review summary, in the third bullet, notes that once modifications are completed on Unit 1, it will no longer be subject to NSPS Subpart D but Subpart Da instead. This is likely not the case. Typically, a modification to the affected unit must be accompanied by an increase in the hourly emissions following the change. As long as the appropriate SO₂, NO_x, and PM emission control enhancements are in place by the time KCPL completes the modifications, we would expect short term emissions to decrease below the current baseline. As a result, this would not be a modification under the NSPS. While MDNR may apply NSPS-like Subpart Da conditions to the existing Iatan Unit 1 as part of its permitting action, this would not change KCPL's compliance reporting obligations under NSPS Subpart D (e.g. 3-hour averaging period). To avoid any confusion later on, it would be helpful for MDNR to clarify either that the existing remains grandfathered under NSPS Subpart D or that the changes to the unit trigger the appropriate modification or reconstruction provisions and therefore trigger Subpart Da applicability.*
- 2) *It appears that KCPL has accepted an hourly limit on operation of the auxiliary boiler to maintain the unit below the 10% annual capacity threshold in NSPS Subpart Db. As a result, the boiler will enjoy certain exemptions from NO_x emissions limits and*

monitoring. We recommend that the permit also include "consequence" language to make clear that if the limit is not met the company must demonstrate, within a reasonable period of time, compliance under NSPS Subpart Db and install and certify the appropriate monitoring equipment.

- 3) *The Review Summary lists a number of federal technology standards that apply to the boilers and other ancillary equipment. Two additional standards are likely to apply; one for the oil storage tank mentioned in Condition 7 and one for the auxiliary boiler mentioned in Condition 6. Specifically, NSPS Subpart Kb will apply to the 500,000 gallon oil storage tank and MACT Subpart DDDDD will apply to the oil-fired auxiliary boiler (as a "limited use liquid fuel subcategory" boiler, as permitted). If the departments' review indicates otherwise, it would be appropriate to clarify as part of the permitting record."*

Response:

Regarding item 1), the Air Pollution Control Program changed the review summary narrative to indicate Subpart D as the applicable subpart for the Unit 1 boiler.

Regarding item 2), the Air Pollution Control Program agrees that there are consequences for KCPL if they operate the auxiliary boiler more than 876 hours per year, but no changes were made to the permit.

Regarding item 3), this will be clarified in the operating permit.

Comment: PM₁₀

- 1) *"A recent PSD permit issued by the State of Utah to Intermountain Power Services Corporation establishes filterable PM and PM₁₀ BACT emission limits for a new unit at 0.013 and 0.012 #/mmBtu, 3-hr average, respectively. The unit and associated pollution controls are nearly identical to those at the proposed Iatan plant and seem to indicate that lower filterable PM and PM₁₀ emissions are achievable. For more details, see <http://www.airquality.utah.gov/PERMITS/DOCS/AN0327010-04.pdf>.*

Recent test data for the Craig Units 1 and 2 plant in Colorado also indicate that filterable PM and PM₁₀ emissions can be expected to be much lower than the BACT limits proposed for Iatan. The Craig units recently replaced the ESPs with baghouses and became subject to more stringent SO₂ and NO_x limits as a result of a Consent Decree with the Sierra Club. Craig is required to scrub 100% of their flue gas with upgraded wet FGDs. While the power plant does not burn PRB coal, the low sulfur western coal from northwestern Colorado is likely to have similar ash properties to the PRB subbituminous coal burned by KCPL. The Craig Consent Decree limits filterable PM to 0.03 lb/MMBtu. Even with such a high "limit", Craig Units 1 and 2 achieved much lower rates during the stack test at 0.0057 and 0.005 #/mmBtu, respectively; approximately 80% below the required standard. These test results are summarized in Attachment A. These data demonstrate that a filterable rate of 0.012 #/mmBtu can be achieved for PM

and PM₁₀ at a plant operating a wet FGD. Even though Iatan will install a continuous particulate matter CEMS for compliance, and there may be some uncertainty about the variability of PM emissions over the entire range of operations, it appears that a BACT limit of 0.012 #/mmBtu provides more than adequate margin of compliance.

Lastly, we have compiled a summary of particulate test data obtained from KCPL's Hawthorn plant. Hawthorn is similar in design to the proposed Iatan plant except that a wet scrubber is proposed for Iatan. While the Hawthorn test data serve only as a proxy for PM₁₀, because Reference Method 5 was used in lieu of RM201 or RM201A to measure filterable PM, there is sufficient data to make estimates of the PM₁₀ filterable fraction as well. The Hawthorn data, over the four year period it was collected, shows PM₁₀ filterable emissions in the range of 0.002 – 0.004 #PM10 (filterable)/mmBtu. While it is possible that the wet scrubber at Iatan may contribute slightly more filterable PM₁₀ since the primary particulate capture equipment is in front of the scrubber, the higher particulate loading is likely to be in the range of the Craig data rather than the substantially higher limit proposed in the permit. We encourage the department to evaluate these data to determine if a lower PM₁₀ filterable limit is appropriate.

- 2) *Condition 13.G establishes a mass balance for estimating PM₁₀ emissions on a semi-continuous basis using continuous data produced by the PM-CEMS and emission factors for PM₁₀ and its component parts determined during a one time stack test required pursuant to Condition 12.A. Until KCPL develops some operational experience with the boilers and associated controls, it is possible that a one time stack test for condensibles and coarse particulate may not be representative for all periods of boiler operation. The department should consider additional testing, using the periodic stack test schedule outlined in Condition 12.H., to have KCPL collect additional PM₁₀ stack data and its component parts to better understand what kind of variability, if any, exists."*

Response:

Regarding item 1., the Air Pollution Control Program is leaving the PM₁₀ emission limits the same as they were in the November 2, 2005 draft permit. The rationale for the BACT emission limits is stated in the permit review summary and the administrative record for this permit. A consideration that was not explicitly mentioned in the review summary is the fact that filterable particulate matter will be continuously monitored, and compliance with the filterable particulate matter and filterable PM₁₀ emission limits are based on a 3-hr averaging time. The method of compliance monitoring and the averaging time are important considerations when comparing BACT emission limits.

Another piece of information that was reviewed after draft permit issuance is a paper that examined BACT PM₁₀ limits at recently permitted coal-fired power plants, see <http://www.epa.gov/ttn/chief/conference/ei14/session9/andracsek.pdf> . The Air Pollution Control Program believes that the PM₁₀, filterable PM₁₀ and filterable particulate matter emission limits for the Unit 1 and Unit 2 boilers represent BACT.

Regarding item 2., the Air Pollution Control Program agrees with this comment and periodic stack testing requirements have been added at Special Condition 12.H.

Comment: Averaging Times

- 1) *“Condition 1.B. establishes a limitation of 4000 tons coal per hour for the entire Iatan Generating Station. It would be helpful to clarify if this is an instantaneous “hourly” limit never to be exceeded, or a value that is averaged over some longer period of time.*
- 2) *Conditions 2.A. and 3.A establish limits on fuel sulfur content and heat input design rates. It would be helpful to clarify if these are “peak” design limits never to be exceeded or are values averaged over some longer period of time. When evaluating applicability under NSPS, EPA typically looks at the sustained 24-hour steady state heat input rate. If these are not intended to be enforceable permit limits, the permit should also clarify.*
- 3) *The permit contains a number of emission and operational restrictions specified on an annual average basis, including the mercury limits in Conditions 2.E.11) and 3.E.11), the hour limits on the auxiliary boiler in Conditions 6.C. and 14.B., the oil throughput limit in Condition 7.B. and the hour limits on the fire pumps in Condition 14.C. To assure that these limits are met at all times, we recommend that they be redefined as 12 month limits, rolled monthly. This helps to make sure that records are updated frequently, minimizes the impact any seasonal fluctuations might have on an annual limit and eliminates the possibility of surprise late in the compliance year that a limit can not be met.*
- 4) *Condition 6.A. sets a sulfur content limit on the fuel oil combusted in the auxiliary boiler. However, the condition is silent over what period of time the 0.05% sulfur by weight standard is to be met. It would be helpful to clarify if this is a “peak” design limits never to be exceeded or is a value averaged over some longer period of time. Since many programs like acid rain and NSPS use a “batch” concept for evaluating sulfur content in fuel oil, this may be the most appropriate measure. If this is the case, it would be helpful to add language at the end of this condition to say “... as determined in Condition 7.B.” With respect to Conditions 7.B. and 14.F. you may also want to expand the options for determining the sulfur content and gross heating value of the fuel oil by saying “... the requirements in 40 CFR Part 75, Appendix D, may also be used to satisfy this requirement.””*

Response:

Regarding item 1., Special Condition 1.B has been modified to specify an averaging time equal to the time that it takes to unload a train-set.

Regarding item 2., Special Condition 21 has been added to track the heat input rate to the boilers. See also response to Washington University Comment III.A.

Regarding item 3., the mercury emission limits for Units 1 and 2 have been changed to **rolling** annual average limits.

Regarding item 4., if a fuel oil analysis reveals a sulfur content above 0.05 this is not an acceptable fuel. Special Conditions 7.B. and 14.F require “batch” sampling.

Comment: Startup & Shutdown Periods

“The long term, 30-day rolling emission limitations for NO_x, SO₂, PM₁₀, and CO in Conditions 2.E. and 3.E. should clearly state whether periods of emissions occurring during startup and shutdown are included in the compliance calculation. EPA typically assumes that such periods are included in the averaging period for longer term standards unless explicitly excluded. If startup and shutdown are excluded from these limits, then the department should establish a secondary BACT limits that apply just during startup or shutdown. If the department determines that such limits are technically infeasible, then it may be appropriate to establish work practice procedures to minimize periods of uncontrolled emissions consistent with good engineering practice.”

Response:

See response to KCPL’s comment on this subject.

Comment: Enforceability of Boiler Design Specifications

- 1) *“KCPL requests an increase in the design heat input rate for existing Iatan Unit 1 from 6,600 to 7,800 mmBtu/hr. While conducting an emissions analysis for this unit, it was interesting to note that the actual measured heat input was over 6,600 mmBtu/hr threshold 82% of the operating time and periodically above the new 7,800 mmBtu/hr design rate 21.9% of the operating time in 2003. These data may be an artifact of over-measurement by the Part 75 acid rain flow monitors, as a result of cyclonic flow, stack wall effects, and fuel (F)-factors, but it raises questions about whether the new design rates KCPL now seeks can be achieved on an ongoing basis. If these design rates are intended to be enforceable limits, then the department should clarify how compliance is to be measured. If the existing acid rain monitors are to be used, then the department should evaluate if the design heat input limit is adequate in light of the number of times the new design limit was exceeded in 2003. This is important because the heat inputs reported by KCPL are federally certified for the acid rain program and could be used as credible evidence when determining if the limits are met. If the acid rain monitors will not be used to verify the design rate, then enforceable alternate procedures such as fuel sampling and analysis and fuel usage records should be established to demonstrate the limits are met. Lastly, if these design rates are meant to be for informational purposes only, then the permit should clearly identify this is the case. A summary of our 2003 heat input analysis for Iatan Unit 1 is attached in Appendix C.”*

Response:

See response to Washington University comment III.A.

Comment: Alternate Fuels

- 1) *“Condition 2.A. notes that “no other fuels shall be used without receiving prior written authorization...” To preserve the ability to evaluate any future emission changes and associated collateral impacts, we recommend that the department also add that “... such authorization may include a BACT and modeling analysis, as deemed appropriate by the Air Quality Control Program, independent of any emission decreases associated with the use of such alternate fuels.””*

Response:

The Air Pollution Control Program will evaluate any request for alternate fuels based on applicable BACT, modeling or other regulatory requirements.

Comment: Monitoring

- 1) *“In general, Condition 13 requires KCPL to install, certify, operate, calibrate, test and maintain continuous emission monitoring systems (CEMS) for a number of pollutants. However, this condition is not explicit about measuring emissions “in terms of the standard” and may leave some uncertainty about whether the CEMS must be used to verify compliance for all emission limitations and averaging periods, including those stated in terms of lbs/mmBtu and lbs/hr. We recommend inclusion of language that assures that KCPL will also install, certify, operate, calibrate, test and maintain the necessary auxiliary monitoring equipment, including but not limited to diluent monitors for heat rate weighted standards, flow monitors for mass rate weighted standards and moisture monitors, if necessary. We also recommend that the permit require installation of a data acquisition and handling system (DAHS) to calculate emissions “in terms of the standard” for all CEMS-measured emissions limits and associated averaging times.*
- 2) *Condition 9 sets out performance and monitoring guidelines for baghouses and other particulate control devices. While these procedures are a good starting point, we encourage the department to also consider the impacts of CAM (compliance assurance monitoring) on “large pollutant specific emission units” – units with post-control potential to emit equal to or greater than 100 tons per year -- and establish CAM-appropriate monitoring that can effectively be rolled into the Title V permit. The continuous PM-CEMS proposed for the Unit 1 and 2 boilers in Condition 13 are adequate indicators of baghouse performance for these units. But, it is unlikely that the “once a day pressure drop measurement” for other particulate control equipment, alone or in conjunction with the other elements of this condition, provide meaningful feedback on control performance for other material handling processes. Since many of these processes, based on the uncontrolled emission factors used in the application, will be*

large PSEU's, they will ultimately need to satisfy the CAM requirements. Under CAM, large PSEU's must collect four or more data values equally spaced over each hour, unless the permitting authority approves a reduced frequency. Therefore, the "once a day" monitoring approach in Condition 9 may not be acceptable for large emission units unless used in conjunction with other appropriate parameter monitoring for which data are recorded at least four times each hour; e.g., baghouse pressure differential, air flow, temperature. For more information on recommended CAM options for baghouses see < <http://www.epa.gov/ttn/emc/cam/draftcamappb.pdf> >."

Response:

Regarding item 1., the Air Pollution Control Program agrees with this comment and has added appropriate language to Special Condition 13.A.

Regarding item 2., this will be addressed further in review of the operating permit application. It is likely that KCPL will be collecting pressure drop information on a continuous basis and the Air Pollution Control Program does not foresee that KCPL will have any problem coming up with a reasonable approach for CAM.

Comment: Recordkeeping

- 1) "Conditions 9.A., 9.B., 9.D. and 10.B.1) a) rely on the concept of "manufacturers specifications" to assure that certain equipment or procedures are properly operated and maintained. But, there is no corresponding requirement that these specifications be provided to MDNR or otherwise maintained by KCPL. As a minimum, we recommend that the permit require KCPL to maintain these plans on-site so that they are available for on-site inspection or by other formal agency request."*

Response:

The Air Pollution Control Program does not anticipate any problem in obtaining this information.

Comment: General Clarity

- 1) "Condition 14.G.2 requires KCPL to continuously record and maintain records of kilowatts produced by the turbine(s) associated with the pulverized coal boilers and auxiliary boiler. Because energy output can be reported many different ways, for example as "net" or "gross" output, the permit should clarify which measure it intends. Since the mercury limits in the permit are adjusted on "gross" output basis, this may be the appropriate measure to specify".*

Response:

The Air Pollution Control Program agrees with this comment and has specified gross kilowatts produced at Special Condition 14.G.2.

Comment: Air Quality Analysis

- 1) *“Condition 11 requires KCPL to secure portions of the site with a fence or other adequate physical barrier. It appears that modeling receptors were excluded to the KCPL property line, so any fencing or physical barrier should be more expansive than just around the landfill, coal storage area and boiler. In other words, any barrier should, as a minimum, correspond to the areas that were excluded from the modeling as non-ambient air.*
- 2) *Condition 17.A. requires KCPL to conduct post-construction monitoring for PM₁₀ and mercury. In addition to the pollutant measurement equipment, we recommend co-location and operation of a meteorological station to help inform any modeling or other air quality analysis that may later be performed on the data.*
- 3) *The basis for PM₁₀ monitoring requirement in Condition 17.E. is that it will be used to validate if the PM₁₀ increment standard is being met in the project area. While we agree that PM₁₀ post-construction monitoring will be valuable for showing that the national ambient air quality standards will be met, these data alone are insufficient to document increment compliance. Nevertheless, we encourage the department to retain this monitoring requirement.*
- 4) *The VISCREEN analysis used to determine plume visual impact on sensitive areas should include oxides of nitrogen, primary nitrogen dioxide, soot, and primary sulfate, as well as primary particulate matter. The intent of the impact analysis is to show the impact from the project, not just the effect of the pollutant that triggered the review. Another sensitive area that should have been included is the nearby ski area located east of the facility.”*

Response:

Regarding item 1., the Air Pollution Control Program agrees with the comment and Special Condition 11 has been changed to ensure that the permit reflects the appropriate physical barrier language for all non-ambient areas of the facility.

Regarding item 2., the Air Pollution Control Program does not believe that an on-site meteorological station is necessary for future air quality analysis given the proximity of the KCI airport surface meteorological station. In addition, the precedent for using the most recent 5 years of National Weather Service data is long-standing and has been approved for nearly all the major source permitting activities in Missouri.

Regarding item 3., the Air Pollution Control Program agrees that any direct compliance evaluation for increment is difficult using ambient monitoring data. However, given the pre-construction monitoring data for PM₁₀ collected near this facility, it will allow for a comparison of monitored data before and after the project is operated.

Regarding item 4: In general, The Air Pollution Control Program agrees with EPA that all relevant pollutants should be included in a visibility evaluation. However, based on the net emission increase for this project, oxides of nitrogen, primary nitrogen dioxide, and primary sulfate emissions will be dramatically reduced from the previous operation at this facility. Therefore, the impact on visibility only evaluated the increased emissions from particulate matter because this represented the worst-case impact for the project and the inclusion of negative emissions would only reduce the impact modeled.

Comment: Mercury

“We continue to work with the Corps of Engineers and KCPL to seek opportunities for a “mercury neutral” strategy that will allow both Units 1 and 2 to operate within the footprint of Unit 1 alone. If we are able to reach consensus, we hope that MDNR will be agreeable, upon KCPL’s request, to include the terms of such “mercury neutral” strategy in the permit.”

Response:

In a letter to the Air Pollution Control Program dated December 9, 2005 KCPL volunteered to comply with a mercury limit of 210 lbs/yr for Units 1 and 2 combined. This emission limit was inserted in to the permit at Special Conditions 2.E and 3.E.

The following comments were submitted to the Air Pollution Control Program by Kansas City Power & Light Company

In a letter dated December 5, 2005 Kansas City Power & Light Company (KCPL) submitted comments pertaining to the draft prevention of significant deterioration (PSD) permit. The Air Pollution Control Program responds to the KCPL comments as follows:

Comment: Section 2 & 3(A)(1) – Start-up, Shutdown or Malfunction Exception

“Section 2(E) and 3(E) of the Draft PSD Permit indicate:

The following emission limits apply to the stack that is associated with the Unit 1 pulverized coal boiler and associated pollution control equipment. KCPL shall not exceed the following emission limits:

and

The following emission limits apply to the stack that is associated with the Unit 2 pulverized coal boilers and associated pollution control equipment. KCPL shall not exceed the following emission limits:

respectively.

The Final PSD Permit issued to the City Utilities of Springfield for Southwest Power Station on December 15, 2004 indicates in Section 2:

Emission Limitation

Except during periods of startup, shutdown, or malfunction (as defined by 10 CSR 10-6.020(2)(M)), City Utilities shall limit the following pollutant’s emission from the PC boiler Number 2 (Emission Point E100) when burning coal to:

KCPL’s permit does not contain the exception for startup, shutdown, or malfunction that the City Utilities of Springfield’s permit issued by the MDNR less than one year ago contains. Missouri law specifically provides a utility the opportunity to submit data regarding start-up, shutdown, or malfunction conditions which result in excess emissions. The data submitted is reviewed by the MDNR to determine whether the excess emissions were due to a start-up, shutdown, or malfunction condition and whether the excess emissions warrant enforcement action.

In addition, in the City Utilities of Springfield’s permit the reference to startup, shutdown, or malfunction is made in the Special Conditions section of the permit. In KCPL’s Draft PSD Permit the only reference to Missouri regulation 10 CSR 10-6.050 Start-up, Shutdown and Malfunction Conditions in the Review section of the permit.”

Response:

As noted in KCPL's comment there are provisions at 10 CSR 10-6.050 for enforcement discretion with respect to excess emissions during start-up, shutdown, or malfunction. The Air Pollution Control Program is not taking any action in this permit to deny KCPL any such enforcement discretion. The permit language in this permit is different from the City Utilities of

Springfield permit. In writing permits, the Air Pollution Control Program considers precedent, but permits can and do differ.

Emission limitations that are calculated with start-up, shut-down, malfunction periods included are more stringent than emission limitations that allow for exclusion of start-up, shut-down, malfunction periods. For emission limitations that are calculated based on rolling averages of 30 days or longer there is some allowance for fluctuation above the numerical limit for shorter time frames, such as an 8-hour cold start of a coal-fired boiler. With this in mind, the Air Pollution Control Program believes that the emission limitations are reasonable, as written.

The filterable particulate matter emission limitations for the coal-fired boilers are based on 3-hr rolling averages and these may be challenging limits to meet during start-up due to the short averaging time. However, if there are excess emissions during start-up, the Air Pollution Control Program wants to know about them. This may be a case where some of the enforcement discretion allowed by 10 CSR 10-6.050 will be granted.

The issue raised by this comment does not pertain to emission limitations that are based on periodic stack testing/test method averages.

Changes to Permit:

A note was added following the emission limitations to reference the start-up, shut-down and malfunction provisions in the regulations.

Comment: Section 2&3(E)(14) and 3(E)(14) – Permit Limit for Hydrogen Fluoride

“Section 2(E)(14) and 3(E)(14) of the Draft PSD Permit indicate:

*Hydrogen Fluoride (HF) – 33.15 lbs/hr, average of 3-runs,
and
HF – 34.43 lbs/hr, average of 3-runs.
respectively.*

Hydrogen Fluoride is listed hazardous air pollutant (HAP) in Section 112 of the Clean Air Act.

MDNR regulation 10 CSR 6.060(9) indicates:

The requirements of this section apply to any owner or operator of a major source identified in subsection (9)(B) of this rule unless the major source in question has been specifically regulated or exempted from regulation. . .

MDNR regulation 10 CSR 6.060(9)(C)(1) indicates:

The requirements of section (9) of this rule do not apply to – 1. Electric utility steam generation units unless they are listed on the source category list established in accordance with section 112(c) of the Clean Air Act. . .

Section 112(c) of the Clean Air Act directs the EPA to establish and maintain a source list. On March 29, 2005, the EPA published a final rule removing coal-fired electric utility steam generating units from the Clean Air Act section 112(c) source category list.

KCPL request the permit limits indicated in the Draft PSD Permit Section 2(E)(14) and 3(E)(14) be removed from the permit. This is because hydrogen fluoride is a HAP and because Iatan Generating Station is an electric utility steam generating unit which is not listed in Section 112(c) of the Clean Air Act and therefore is specifically exempt from HAP regulations.”

Response:

The legal authority to perform ambient air quality analysis and issue permit limits for hazardous air pollutants (HAPs) is contained under Missouri regulation. This project is exempt from Section 9 requirements for a case-by-case MACT determination. However, the basis for the inclusion of this condition is not within Section 9. The basis is 10 CSR 10-6.060(12)(J) that requires the submittal of an air quality analysis for any permit where HAPs exceed the threshold designated by APCP. In this case, hydrogen fluoride exceeded the emission threshold and was modeled to establish a limit to protect the public from ambient concentrations identified in (12)(J) as harmful.

Comment: Section 10(C) – Daily Limits for Haul Roads

“KCPL’s permit application indicates an annual limit associated with the haul roads. KCPL requests that a column indicating an annual limit be added to the table indicated above in Section 10(C) of the Draft PSD Permit. KCPL continuously monitors the markets combustion products for offsite use amounts to recycling this product instead of disposing of it. For example, the two major fly ash markets are as a partial replacement for portland cement in concrete and as a drying agent and stabilization reagent for low quality soils on construction sites and under roads. The combustion by-product markets change seasonally if not more often. KCPL requests the MDNR provide in this Section 10(C) a flexible means by which KCPL can request and receive a permit amendment while showing compliance by submitting revised modeling analysis.”

Response:

The pollutant of concern from haul roads is PM₁₀. As a part of this application, KCPL was required to submit an ambient air quality analysis for PM₁₀. The National Ambient Air Quality Standard for PM₁₀ is based upon both a 24-hour and annual averaging period. In order to demonstrate compliance with air quality analysis conducted as a part of the application, it is necessary for the permit to contain daily limits on the amount of material hauled on the roads. The daily limits found in the draft permit reflect those limits which used in the air quality

analysis for PM₁₀. If KCPL wishes to increase the daily tonnage-hauled limits for the haul roads, they will need to submit a revised air quality analysis to the Air Pollution Control Program for its review. As long as the annual emissions (i.e. annual tonnage hauled) does not increase, the permit may be amended to increase the daily tonnage-hauled limits found in the permit. However, if the annual emissions would increase, the change would be considered a modification.

Comment: Section 12(D) – Inclusion of Hazardous Air Pollutants

“Arsenic, beryllium, cadmium, chlorine, chromium, fluorine, manganese, nickel, and selenium are listed hazardous air pollutants (HAPs) in Section 112 of the Clean Air Act.

MDNR regulation 10 CSR 6.060(9) indicates:

The requirements of this section apply to any owner or operator of a major source identified in subsection (9)(B) of this rule unless the major source in question has been specifically regulated or exempted from regulation. . .

MDNR regulation 10 CSR 6.060(9)(C)(1) indicates:

The requirements of section (9) of this rule do not apply to – 1. Electric utility steam generation units unless they are listed on the source category list established in accordance with section 112(c) of the Clean Air Act. . .

Section 112(c) of the Clean Air Act directs the EPA to establish and maintain a source list. On March 29, 2005, the EPA published a final rule removing coal-fired electric utility steam generating units from the Clean Air Act section 112(c) source category list.

KCPL requests item 5 through 10, 12, 14, and 15 indicated in Draft PSD Permit Section 12(D)(5) to (14) be removed from the permit. This is because arsenic, beryllium, cadmium, chlorine, chromium, fluorine, manganese, nickel, and selenium are HAPs and because Iatan Generating Station is an electric utility steam generating unit which is not listed in Section 112(c) of the Clean Air Act and therefore is specifically exempt from HAP regulations.”

Response:

See response to *Comment: Section 2&3(E)(14) and 3(E)(14) – Permit Limit for Hydrogen Fluoride.*

Comment: Section 12(E) – Inclusion of Hazardous Air Pollutants

“Hydrogen fluoride, arsenic, beryllium cadmium, chromium, cobalt, manganese, nickel, and selenium are listed hazardous air pollutants (HAPs) in Section 112 of the Clean Air Act.

MDNR regulation 10 CSR 6.060(9) indicates:

The requirements of this section apply to any owner or operator of a major source identified in subsection (9)(B) of this rule unless the major source in question has been specifically regulated or exempted from regulation. . .

MDNR regulation 10 CSR 6.060(9)(C)(1) indicates:

The requirements of section (9) of this rule do not apply to – 1. Electric utility steam generation units unless they are listed on the source category list established in accordance with section 112(c) of the Clean Air Act. . .

Section 112(c) of the Clean Air Act directs the EPA to establish and maintain a source list. On March 29, 2005, the EPA published a final rule removing coal-fired electric utility steam generating units from the Clean Air Act section 112(c) source category list.

KCPL requests Draft PSD Permit Section 12(E) be removed from the permit. This is because hydrogen fluoride, arsenic, beryllium, cadmium, chromium, cobalt, manganese, nickel, and selenium are HAPs and because Iatan Generating Station is an electric utility steam generating unit which is not listed in Section 112(c) of the Clean Air Act and therefore is specifically exempt from HAP regulations.”

Response:

Please see above Response for *Comment: Section 2&3(E)(14) and 3(E)(14) – Permit Limit for Hydrogen Fluoride.*

Comment:

Section 12(H) – Inclusion of Hazardous Air Pollutants

Hydrogen fluoride is a listed hazardous air pollutant (HAP) in Section 112 of the Clean Air Act.

MDNR regulation 10 CSR 6.060(9) indicates:

“The requirements of this section apply to any owner or operator of a major source identified in subsection (9)(B) of this rule unless the major source in question has been specifically regulated or exempted from regulation. . .

MDNR regulation 10 CSR 6.060(9)(C)(1) indicates:

The requirements of section (9) of this rule do not apply to – 1. Electric utility steam generation units unless they are listed on the source category list established in accordance with section 112(c) of the Clean Air Act. . .

Section 112(c) of the Clean Air Act directs the EPA to establish and maintain a source list. On March 29, 2005, the EPA published a final rule removing coal-fired electric utility steam generating units from the Clean Air Act section 112(c) source category list.

KCPL requests hydrogen fluoride indicated in Draft PSD Permit Section 12(H) be removed from the permit. This is because hydrogen fluoride is a HAP and because Iatan Generating Station is an electric utility steam generating unit which is not listed in Section 112(c) of the Clean Air Act and therefore is specifically exempt from HAP regulations.”

Response:

Please see above Response for Comment: Section 2&3(E)(14) and 3(E)(14) – Permit Limit for Hydrogen Fluoride.

Comment:

“Appendix A.1 Net Emission Increase Calculations for PM₁₀:

KCPL requests:

- a column be added for Annual Throughput Units for clarification,*
- revise the EF Unit for EP-26 to lbs/acre-hr, and*
- provide further detail to support calculations as necessary.*

Appendix A.2 Net Emission Increase Calculations for Sulfur Dioxide:

KCPL requests:

- a column be added for Annual Throughput Units for clarification,*
- the Annual Throughput (historical) be footnoted to indicate that it is calculated assuming 8200 Btu/lb coal,*
- units be added for the column EF (historical),*
- revise Aux. Boiler Annual Throughput (historical) to 192,194 MMTbtu based on 876 hours per year, and*
- provide further detail to support calculations as necessary.*

Appendix A.3 Net Emissions Increase Calculations for Oxides of Nitrogen:

KCPL requests:

- a column be added for Annual Throughput Units for clarification,*
- the Annual Throughput (historical) be footnoted to indicate that it is calculated assuming 8200 Btu/lb coal,*
- units be added for the column EF(historical),*
- revise Aux. Boiler Annual Throughput (historical) to 192,194 MMTbtu based on 876 hours per year, and*
- provide further detail to support calculations as necessary.*

Appendix A.4 Net Emissions Increase Calculations for Volatile Organic Compounds:

KCPL requests a column be added for Annual Throughput Units for clarification and further detail be provided to support calculations as necessary.

*Appendix A.5 Net Emission Increase Calculations for Carbon Monoxide:
KCPL requests units be added for all annual throughputs indicated and further detail be provided to support calculations as necessary.*

*Appendix A.6 Net Emissions Increase Calculations for Sulfuric Acid Mist:
KCPL requests a column be added for Annual Throughput Units for clarification and further detail be provided to support calculations as necessary.*

*Appendix A.7 Net Emission Increase Calculations for Lead:
KCPL requests:*

- a column be added for Annual Throughput Units for clarification,*
- the Annual Throughput (historical) be foot noted to indicate that it is calculated assuming 8200 Btu/lb coal, and*
- provide further detail to support calculations as necessary.*

Response:

The Air Pollution Control Program revised the spreadsheets as follows:

- Appendix A.1 – revised the EF Unit for EP-26 to lbs/acre-hr
- Appendix A.2 – added units to EF (historical) column and revised the aux. boiler throughput (future) to 192,194 MMBTU. Note: This did not affect the calculations since the hours of operation column was, and is, the column used in the emission calculation, rather than the throughput (future) column.
- Appendix A.3 – added units to EF (historical) column and revised the aux. boiler throughput (future) to 192,194 MMBTU. Note: This did not affect the calculations since the hours of operation column was, and is, the column used in the emission calculation, rather than the throughput (future) column.

With regard to the remaining items that KCPL commented upon, these do not affect the calculations and further details are available as part of the administrative record.

Comments Regarding the Air Dispersion Modeling Memo: (paraphrased/summarized)

Regarding Section I, Paragraphs 2 and 3 and Section IV Table 3 –

KCPL pointed out a few areas in the air dispersion modeling memo where some of the narrative did not get updated as KCPL amended the narrative to the original application.

Regarding Section IV, Point Source Emissions, Paragraph 2 –

KCPL states a preference for using AP-42 emission factors for the 2003 and 2004 PM₁₀ emissions, rather the approach that the Air Pollution Control Program utilized which was

based on stack test results for particulate matter. KCPL points out that the stack test information does not indicate the fraction of particulate matter that is PM₁₀.

Regarding Section IV, Area Source Emissions, Paragraph 2 –

The modeling memo contained a note that requested KCPL to add Unit 1 – Fly Ash Sold emissions to the 2003 and 2004 emission inventories since these emissions were creditable with respect to the netting analysis. KCPL objects to this request and believes that the EIQ requirements are applicable to unpaved haul roads only. The Unit 1 - Fly Ash Sold haul road is paved.

Response:

Regarding Section I, Paragraphs 2 and 3 and Section IV Table 3 –

These sections of the memorandum are included to reflect a description of the project and the information contained was provided by KCPL in a previous permit application submittal for this project. Since this information has no bearing on the final modeling results or the permit itself, we will provide an update to the memorandum that we provide a new project description utilizing the information provided by KCPL.

Regarding Section IV, Point Source Emissions, Paragraph 2 -

There are two issues associated with this comment: (1) the use of the most accurate information in the netting and air quality analyses, and (2) the potential under-payment of emission fees.

The Air Pollution Control Program believes that the 0.035 lb/MMBTU emission factor used in the netting and air quality analyses is more accurate than the AP-42 emission factor. Generally speaking, the use of unit-specific stack test data is going to be more accurate than AP-42 emission factors which are based on a number of units which may have different design characteristics, operating parameters, fuel types, etc. There is also a problem with the AP-42 factor that KCPL supports – it does not include condensable particulate matter.

KCPL is correct in pointing out that the stack test data does not indicate the fraction of particulate matter that is PM₁₀; however, the stack test data was adjusted to account for particle size distribution and condensable particulate matter as follows. The average particulate matter emission rate during a May 2003 stack test at Iatan Unit 1 was 0.0345 lb/MMBTU. According to Table 1.1-6 of the AP-42 section for bituminous and subbituminous coal combustion, 67 percent or more of particulate matter from a pulverized coal-fired boiler is going to be PM₁₀. This figure is probably an underestimate. Using 73 percent as the PM₁₀ mass fraction and 0.01 lb/MMBTU for condensable particulate matter (see AP-42 Table 1.1-5), results in an emission factor for PM₁₀ (filterable and condensable) of 0.035 lb/MMBTU.

KCPL requested remodeling based on the EPA AP-42 emission factor for Unit 1. The Air Pollution Control Program verified that these emission rates would not change the findings of the air quality analysis and has provided an update to the modeling memorandum to reflect the “new” results. Therefore, this issue is no longer directly tied to permit issuance and will need to be addressed as part of an emission inventory questionnaire audit for the Iatan facility. The Air Pollution Control Program is confident that the original emission factor used for the air quality analysis is the best information available for this source and the original results are more indicative of the net emission increase for this project.

Section IV – Area Source Emissions, Paragraph 2

KCPL provides no remedy for the issue regarding incorrect PM_{10} netting analysis in the modeling memorandum. KCPL states it has an interpretation of not including paved road in Iatan’s emission inventory questionnaire. In particular, Iatan’s paved road emissions are reportable emissions that should have been reported. This is especially true because these emissions were utilized in an air quality netting exercise and reduce the modeled impact of the roads in question. It would be short-sighted of the Air Pollution Control Program to allow past actual emissions that were not reported in the EIQ to be used for air quality netting purposes. Therefore, the Air Pollution Control Program is adding a condition to the permit that requires an amendment to the EIQ.

Changes to Permit:

See Special Condition 23.

The following comments were received from Washington University Interdisciplinary Law Clinic on behalf of the Sierra Club:

The Environmental Clinic will be referred to hereafter as Washington University. Washington University submitted a 76-page comment letter on behalf of the Ozark Chapter of the Sierra Club. An outline of the letter is presented as follows:

- I. The Ozark Chapter of the Sierra Club and its members will be adversely affected by the issuance of this draft permit
- II. DNR should deny the permit because the project will create an unacceptable air quality impact
- III. KCPL's netting claim appears to be invalid
- IV. DNR should deny the permit due to KCPL's failure to perform adequate BACT analyses
- V. DNR should revise the BACT-based emission limits in the draft permit to reflect the true capacities of the BACT technologies
- VI. DNR should revise the permit to enforce federal and practical enforceability
- VII. DNR has not provided adequate opportunity for public comment

The Air Pollution Control Program responds to the Washington University comments as follows:

Comment II.A. and Comment II.A.1.

Comment: (quoted, without footnotes)

A. "DNR May Not Issue the Permit Because the Proposed Plant Will Contribute to Exceedances of Both NAAQS and PSD Increments for PM₁₀

The Clean Air Act, 42 U.S.C. § 7475(a)(3), the Missouri Air Conservation Law, § 643.075.3, R.S.Mo., and DNR's EPA-approved implementing regulations, 10 CSR 10-6.060(8)(C)3, preclude DNR from issuing a PSD permit unless it is affirmatively demonstrated that the proposed project "will not cause or contribute to ambient air concentrations in excess of any ambient air quality standard or any applicable maximum allowable increase over the baseline concentration in any area." 10 CSR 10-6.060(8)(C)3. Specifically under the PSD program, increases in criteria pollutant concentrations must be less than the PSD Class II increments reported at 40 CFR 52.21(c). When the increments are exceeded, the PSD permit is denied unless the project is modified to reduce impacts to below all applicable increments.

As part of its review of KCPL's PSD application (referred to herein as "Application"), DNR performed air dispersion modeling, detailed in its Modeling Memo, ostensibly to verify compliance with the NAAQS and PSD increments.¹ DNR modeled PM₁₀ emissions for all sources with emission rate changes since the baseline date, including the Iatan Unit 2 sources and the emission reductions from Iatan Unit 1.²

The most sensitive air quality significance level for the proposed KCPL project is the 24-hour PM₁₀ Class II PSD increment of 30 ug/m³.³ For 24-hour average modeled concentrations, the applicable maximum allowable increase may be exceeded during one such period per year at any one location (40 CFR 52.21(c)). Based on air dispersion modeling, the Application reports a highest second-high 24-hour PM₁₀ concentration of 24.62 ug/m³ – a value about 82% of the allowable increment. This modeled increment includes emission increases from Iatan Unit 2, emission decreases from Iatan Unit 1 haul roads, and other sources identified by DNR within the modeling significance level (MSL) area.

DNR's modeling results showed that second high 24-hour PM₁₀ concentrations exceeded the PSD Class II increment of 30 ug/m³ at the receptor with UTM coordinates 331009, 4367108. At this location, which is a "fence line" receptor for KCPL, DNR-reported second high 24-hour PM₁₀ concentration is 107.781 ug/m³, which exceeds the Class II increment by a factor of 3.5.⁴ Next, DNR assessed the contribution from KCPL at this peak receptor location (which is subsequently given UTM coordinates of 318638, 4378741) and found that KCPL's contribution is less than the PSD Class II increment of 30 ug/m³, and is therefore in compliance.⁵

By reviewing the modeling files prepared by DNR, it is apparent that Table 16 of the Modeling Memo incorrectly lists the peak modeled receptor coordinates. This typographical error can be easily corrected to make Tables 16 and 17 consistent with each other. Reviewing DNR's PSD increment modeling, however, raises an additional concern – it appears likely that a PM₁₀ source other than KCPL (with emission increases since the baseline date) was permitted despite modeled PSD Class II increment violations. DNR should investigate this matter further to identify the culpable source.

In sum, the Modeling Memo actually concedes that the proposed Iatan project will cause or contribute to ambient air concentrations in excess of the NAAQS for PM₁₀ and in excess of the maximum allowable increment for PM₁₀. As discussed below, these exceedances cannot simply be brushed away as not "significant."

Additionally, a more direct approach to verifying compliance with the PSD Class II increment is to model the PM₁₀ emission changes from Iatan Units 1 and 2 alone. In this type of investigation, any violation of the PSD increment would clearly be due to KCPL. We have prepared such an analysis.⁶ The results, discussed below, indicate that when the correct inputs are used, KCPL on its own causes a violation of the PSD increment.

- 1. DNR May Not Issue the Permit Because Its Own Modeling Shows That The Proposed Plant Will Contribute to Exceedances of Both NAAQS and PSD Increment for PM₁₀*

With respect to the NAAQS, the Modeling Memo (p. 20) states: "The PM₁₀ 24-hr high sixth high concentrations are above the NAAQS standard of 150 ug/m³..." The Modeling Memo attempts to brush aside this fatal flaw in KCPL's application by reference to an uncited "regulation" purportedly providing that NAAQS exceedances may be ignored if the

offending project does “not have a significant impact at any violating receptor.” However, the applicable Missouri regulation, quoted above, has no such “significant impact” exception. Instead, it states plainly – as it must pursuant to the identical requirement in the federal Clean Air Act, 42 U.S.C. §7475(a)(3) – that the proposed project must demonstrate that it will not cause or contribute to ambient air concentrations “in excess of any ambient air quality standard.” 10 CSR 10-6.060(8)(C)3. Thus, under the governing law, DNR’s own Modeling Memo demonstrates that the draft permit must be denied because the project will cause or contribute to ambient air concentrations in excess of the NAAQS for PM₁₀.

The analysis is similar with respect to the requirement that the proposed project be demonstrated not to cause or contribute to an exceedance of the applicable “maximum allowable increase over the baseline concentration,” 10 CSR 10-6.060(8)(C)3, also known as the “maximum allowable increment.” DNR’s Modeling Memo (p. 23) states: “the PM₁₀ 24-hr high second high concentrations are above the increment standard.” The Modeling Memo attempts to brush aside this additional fatal flaw in KCPL’s application by reference to an uncited “EPA guidance” purportedly providing that increment exceedances may be ignored if the offending project does “not have a significant impact at any violating receptor.” However, the applicable state regulation, quoted above, has no such “significant impact” exception. Instead, it states plainly – as it must pursuant to the identical requirement in the federal Clean Air Act, 42 U.S.C. §7475(a)(3) – that the proposed project must demonstrate that it will not cause or contribute to ambient air concentrations “in excess of any ... applicable maximum allowable increase over the baseline concentration in any area.” 10 CSR 10-6.060(8)(C)3. Thus, under the governing law DNR’s own Modeling Memo demonstrates that the draft permit must be denied because the project will cause or contribute to ambient air concentrations in excess of the maximum allowable increment for PM₁₀.

As noted above, the word “significant” appears nowhere in the applicable PSD provisions of the federal Clean Air Act, Missouri Air Conservation Law, and Missouri’s EPA-approved implementing regulations. In contrast, the word “significant” occurs in a separate section applicable solely to nonattainment areas. CAA § 110(a)(2)(D)(i), 42 U.S.C. § 7410(a)(2)(D)(i), contains two subsections. CAA § 110(a)(2)(D)(i)(I) imposes a ban on sources that will “contribute significantly” to nonattainment in other states. CAA § 110(a)(2)(D)(i)(II), however, does not use the term “significant.” It simply references part C, which addresses PSD permits and encompasses the language cited above, which prohibits a source from causing or contributing to a violation of a NAAQS or increment. CAA § 165(a)(3), 42 U.S.C. § 7475(a)(3). Congress did not use the term “significant” in CAA §165(a)(3). It did use that term in CAA §110(a)(2)(D)(i)(I).

“[W]here Congress includes particular language in one section of a statute but omits it in another section of the same Act, it is generally presumed that Congress acts intentionally and purposely in the disparate inclusion or exclusion.” Bates v. United States, 522 U.S. 23, 29-30 (1997) (internal citations omitted); see also Duncan v. Walker, 533 U.S. 167, 173 (2001) (same).

The PSD program “set[s] as the threshold of ‘significant deterioration’ for each pollutant in each area as the lower of the allowable increment or the applicable NAAQS, and the emphatic goal of the PSD provisions is to prevent those thresholds from being exceeded.” Alabama Power Company v. Costle, 636 F.2d 323, 362 (D.C. Cir. 1979) (emphasis added). Thus, issuing a PSD permit after the modeling shows violations of the 24-hour PM₁₀ NAAQS and PSD Increment would be contrary to the long established prohibition against allowing violations of NAAQS and PSD Increment in attainment areas.

In reference to a previous version of this application, EPA Region 7 noted that this purported “significance” exception is unacceptable: “Once it is determined that the more detailed increment and NAAQS modeling is necessary, the results of that modeling are absolute. None may exceed the NAAQS or the increment.”

In violation of the express provisions of federal and state law, DNR is creating an unsupported – and undefined – “significance” exemption to the prohibition on issuing PSD permits to projects – such as the proposed Iatan project – that cause or contribute to exceedances of the NAAQS or maximum allowable increment. Because DNR’s own Modeling Memo concedes that the proposed Iatan project will cause or contribute to exceedances of both the NAAQS and maximum allowable increment for PM₁₀, DNR must deny the permit on those grounds.”

Response:

General Response – The modeling procedure is always the same for major permits in Missouri. First, the Air Pollution Control Program identifies the net emission increase for each pollutant that triggers a review for the project. Then, the Air Pollution Control Program reviews the applicant’s preliminary analysis for each pollutant to understand the extent of the significant impact. Significant is defined in 10 CSR 10-6.020(2)(S)(10) as “A net emission increase or potential to emit at a rate equal to or exceeding the de minimis levels or create an ambient air concentration at a level greater than those listed in 10 CSR 10-6.060 (11)(D) Table 4...” Table 4 codifies in Missouri state regulation what EPA mandates for use (at a minimum) as part of each approved State Implementation Plan with respect to the “cause or contribute” criteria under 40 CFR 51.165(b)(2).

This regulation and the EPA’s New Source Review Workshop Manual, Draft 1990, are used as the basis to determine if modeled impacts are, by EPA definition, less than the cause or contribute threshold. In other words, any impacts less than this threshold are “not significant” for the purposes of contributing to violations of the ambient air quality or increment standards using EPA guidance, federal regulation, and Missouri regulation.

If the project’s net emission increase demonstrates less than significant impact, no further analysis is required for that pollutant. This is the outcome for the CO analysis for this project. However, if the project’s net emission increase has a significant impact for a pollutant, then a full-impact analysis is required to demonstrate that the new source impacts for that pollutant in conjunction with all other applicable sources do not exceed the NAAQS or increment standards. The final step in the analysis is a determination of the project’s impacts on receptors that have been identified as violating the increment or NAAQS standards at the time of the predicted

violation(s). Again, if a source can demonstrate a less than significant impact on that receptor, then the source would be found not to “cause or contribute” to that violating receptor. This scenario is exactly the outcome for the PM₁₀ NAAQS and increment standard for this project.

Response to specific portions of Comments II.A. and IIA.1. -

“Next, DNR assessed the contribution from KCPL at this peak receptor location (which is subsequently given UTM coordinates of 318638, 4378741) and found that KCPL’s contribution is less than the PSD Class II increment of 30 mg/m³, and is therefore in compliance.”

The language regarding the Air Pollution Control Program’s finding of KCPL’s contribution in this comment is incorrect. The program determined the contribution from KCPL’s project emission increase is less than the significance levels, as discussed previously, at these “violating” receptors. Therefore, KCPL’s project does not cause or contribute to these existing predicted violations of the PSD Class II PM₁₀ increment standard.

“By reviewing the modeling files prepared by DNR, it is apparent that Table 16 of the Modeling Memo incorrectly lists the peak modeled receptor coordinates. This typographical error can be easily corrected to make Tables 16 and 17 consistent with each other. Reviewing DNR’s PSD increment modeling, however, raises an additional concern – it appears likely that a PM₁₀ source other than KCPL (with emission increases since the baseline date) was permitted despite modeled PSD Class II increment violations. DNR should investigate this matter further to identify the culpable source.”

The comment is correct with regard to the typographical error in the modeling review memorandum with respect to the maximum increment receptor. This typographical error does not change the results of the review and is corrected in a modeling memorandum update. In addition, there are several points to note with respect to this comment. As noted in the review memorandum, the actual PM₁₀ baseline area for the project area is only the footprint of the previous Iatan 2 application submitted by KCPL. Therefore, no additional, existing PM₁₀ increment sources are required to be evaluated beyond those receptors. Nonetheless, MDNR undertook this component of the review for the entire modeling receptor area to alleviate any potential concerns with respect to PM₁₀ increment standard compliance in outstate Missouri and Kansas. For this project, the conservative use of potential emission increases since the baseline date for all increment sources and the potential evaluation of receptors in non-ambient air for interactive sources (on-property evaluation) could cause exceedances/violations of the PM₁₀ standard that may be overestimated.

“Because DNR’s own Modeling Memo concedes that the proposed Iatan project will cause or contribute to exceedance of both the NAAQS and maximum allowable increment for PM₁₀, DNR must deny the permit on those grounds.”

In fact, the modeling memorandum directly states that the project will not have a significant impact on any potential violations of the PM₁₀ standards. As discussed in a previous response, this language is used to provide a finding that this project will not cause or contribute to

violations of the applicable PM₁₀ standards. Therefore, the permit was issued correctly and provides adequate public protection under Missouri air regulation for the operation of the equipment permitted.

Comment II.A.2

Headings: DNR May Not Issue The Permit Because Corrections to KCPL's PM₁₀ Emission Rates and Inputs Result in PSD Increment Violations

Cooling Tower Emission Rates Should be modeled as 100% PM₁₀

Haul Road Fugitive Dust Control Efficiencies Should be Modeled Based on 90% Control Efficiency

The Kansas City Airport Meteorological Data are Unacceptable for Air Dispersion Modeling

Comment: (summarized)

Washington University points to what they consider to be flaws in the modeling inputs with regard to the subjects described in the above headings. An excerpt from the comment letter describes the issues further:

"Each of these inputs tends to reduce modeled impacts, thus producing a flawed PSD increment analysis. These faulty inputs include:

- Assuming that only five percent of the cooling tower particulate matter drift is PM₁₀;*
- Assuming that fugitive dust from the haul roads can be controlled at 95% efficiency;*
- Using low quality and non-representative meteorological data from the Kansas City Airport;*
- Applying a modeling "fence line" that is larger than observed and reported in the Application."*

Response:

"Assuming that only five percent of the cooling tower particulate matter drift is PM₁₀"

The Air Pollution Control Program re-evaluated the issue of particle size distribution for cooling tower emissions. Section 13.4 of EPA Document AP-42 for wet cooling towers utilizes a conservative approach where 100% of the particulate matter emissions from cooling towers is assumed to be PM₁₀. This conservative assumption has also been used in past Air Pollution Control Program permits. A decision was made to proceed with revised modeling, utilizing 100% PM₁₀ and a revised efficiency for the cooling tower drift eliminators (twice as effective as contemplated in the draft permit). The net result is a 10-fold increase in PM₁₀ emissions from all cooling tower sources in the permit. The results of the revised modeling analysis are provided in

the attached supplement to the November 2, 2005 modeling memorandum. As can be seen, the results of this change (along with the other changes to the modeling files) cause slightly higher PM₁₀ impacts near the Iatan property, but do not cause or contribute to violations of the increment or NAAQS standards.

“Assuming that fugitive dust from the haul roads can be controlled at 95% efficiency”

It has been, and continues to be, the Air Pollution Control Program's policy to count 90 percent control efficiency for haul roads that have been paved. A control efficiency of 95 percent is allowed if the haul road is paved and then the pavement is periodically washed and/or cleaned. This policy has been used in multiple past permits issued by the Air Pollution Control Program. This policy is documented on page 17 of the *Users Guide-Quarries*. This document can be found in the Quarry AAQ/CPA Package located at the following web address <http://www.dnr.mo.gov/env/apcp/NSRpermits.htm>.

Washington University references the recently issued City Utilities of Springfield permit (Permit Number 122004-007) in this comment. With regard to the City Utilities of Springfield permit (Permit Number 122004-007), it is believed that the permit page number referenced in the comments is incorrect. The comment states that on page 23 of City Utilities of Springfield's permit:

"... DNR also applied 90% control efficiency due to paving haul roads for the City Utilities of Springfield PSD BACT and modeling review."

On page 30 of the City Utilities of Springfield permit (Permit Number 122004-007), under the heading *PM₁₀ Control Technologies - Haul Roads*, it says:

Thus, BACT for the landfill haul road was determined to be either the application of chemical surfactant or documented watering to achieve a control efficiency of 90 percent.

Nowhere in the City Utilities of Springfield permit does it state that a control efficiency of 90 percent was applied as a control efficiency due to paving haul roads.

“Using low quality and non-representative meteorological data from the Kansas City Airport”

In general, airport meteorological data are considered appropriate for analyses of this type in virtually every situation as provided in 40 CFR Part 51 Appendix W – Guideline on Air Quality Models. The use of on-site meteorological data has been required in Missouri when severe terrain conditions or dramatic micro-meteorological conditions are present. There is no reason to believe that the KCI airport surface meteorological data are not representative of an area 17 miles to the North in a region of generally flat terrain. In subsequent comments on this topic, it is suggested that the results from an analysis of on-site meteorological data would predict higher impacts from the project's emissions. These statements are complete supposition. The use of 5-years of representative meteorological from an airport could predict higher or lower concentrations than the minimum 1-year of on-site data. The meteorological data used for this

project are representative and have been consistently applied with respect to nearly all PSD permits issued in Missouri.

“Applying a modeling ‘fence line’ that is larger than observed and reported in the Application;”

The permit condition used to identify the fence line will be modified accordingly. The modeled boundary will be the boundary of record and preclusion will have to occur before changes in this permit are executed.

Changes to Permit:

See revised Special Condition 11.

Comment II.B.

Heading: KCPL Has Not Demonstrated That Emissions from the Iatan Project Will Not Cause or Contribute to Air Pollution in Excess of the 8-Hour Ozone and Fine-Particulate Matter Ambient Air Quality Standards.

Comment: (summarized)

Washington University believes that compliance with the 8-hour ozone and PM_{2.5} national ambient air quality standards (NAAQS) needs to be demonstrated through air quality impact monitoring, regardless of the status of the State Implementation Plans (SIPs) for these pollutants.

Response:

With respect to the 8-hour ozone standard, the stand-alone amount of VOC emission increases (approximately 150 tons per year) for this project are not sufficient to warrant a photochemical modeling exercise for an area already in compliance with the NAAQS. In addition, the project will reduce the amount of NO_x emitted from this source by approximately 3,500 tons per year. Also, in out-state Missouri, much of the atmosphere is NO_x-limited for ozone formation. This means that a reduction in NO_x will help reduce ozone concentrations more than the small amount of VOC emission increase will raise ozone concentrations.

With respect to the PM_{2.5} standard, the NO_x and SO₂ emission netting exercise will be a sizable benefit to PM_{2.5} concentration reductions in the immediate area and potentially far downwind (hundreds of kilometers). NO_x and SO₂ are PM_{2.5} precursors. Also, there is not a current modeling database to evaluate project-specific emission increases in the Kansas City area for ozone or PM_{2.5}. The likelihood of emissions from this project contributing to violations of the PM_{2.5} or 8-hour ozone NAAQS is, for all practical purposes, non-existent given the current set of circumstances in the Kansas City area.

Comment II.C.

Heading: The Draft Permit Fails to Analyze Sufficiently the Project's Potential Impacts to Soils and Vegetation

"KCPL's soils and vegetation impacts "analysis" relies largely on the (erroneous) conclusion that the project will not cause or contribute to air concentrations in excess of air quality standards and therefore should not pose a problem for soils and vegetation."

Response:

The Air Pollution Control Program evaluated the impact of the proposed KCPL modification on sensitive species as outlined in the document entitled "A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals". This document was released as a final report in December 1980 by the Environmental Protection Agency and was designed to provide state and local agencies guidance on the procedures to be followed when determining the impact that a new source or modification would have on sensitive species of plants, soils, and animals. The Air Pollution Control Program did not base its conclusions upon the results obtained from the National Ambient Air Quality Standards analysis as indicated but followed the eight step process outlined in the guidance document as required by the Environmental Protection Agency.

"It does not analyze potential pollutant impacts to local sensitive vegetation."

The document referenced above states "The values presented here represent the ambient levels at which visible damage or growth retardation may occur or the observed minimum levels at which injury and mortality to plants have been reported. These numbers are generally the lowest values consistently reported in the literature on plant response to controlled exposures of single pollutants. Both field and greenhouse studies have been used in developing the data." It also important to note the screening document was developed to address concerns by the Federal Land Manager on impacts within Class I areas and are typically more stringent than those developed for Class II areas. Given this information the Air Pollution Control Program feels that the screening procedures are sufficient to determine damage on local plant species.

"It does not address potential impacts related to pollutants other than particulate matter and carbon dioxide. Of greatest concern is its failure to address potential impacts due to the Iatan project's emissions of mercury, sulfur dioxide, and nitrogen oxides."

Under the prevention of significant deterioration guidelines, a facility must submit an air quality analysis for each pollutant it proposes to emit in excess of the *De Minimis* emission levels outlined in 10 CSR 10-6.020(3)(A) Table 1. Due to the required installation of wet scrubbing systems on the Unit 1 and Unit 2 boilers and the installation of SCR with ammonia injection, the emissions from the project for SO₂ and NO_x will not exceed the *De Minimis* emission levels. Therefore, under PSD guidelines the inclusion of NO_x and SO₂ in the ambient air quality impact analysis is not required.

"One of the most harmful pollutants to local soils and vegetation is sulfur dioxide, the primary cause of acid rain. DNR's Modeling Memo includes SO₂ and other pollutants in Table 19, but does not discuss the potential significance of SO₂ deposition on sensitive

vegetation. Moreover, the Ozark Chapter cannot comment meaningfully on the project's potential short-term ambient SO₂ concentrations and their impacts on soils and vegetation without reviewing and critiquing DNR's inputs used to create Table 19. In addition, the SO₂ modeling should be compared with plant sulfur-tolerance thresholds from established scientific analyses."

As stated previously, KCPL was not required to analyze SO₂ impacts because they were below the De Minimis thresholds outlined in 10 CSR 10-6.020(3)(A) Table 1. Additionally, the document entitled "A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals" states "no simple procedure is currently available to deal with the impact of a single source on acid precipitation. Acid precipitation presents a regional problem involving 'long-range' transport which makes the impact of a single source difficult to isolate...A major EPA initiative to study acid precipitation is currently underway. Policy and guidance will be formulated as part of this initiative." The Air Pollution Control Program is not aware of any current Environmental Protection Agency guidance addressing single source impacts on acid rain.

"The potential impacts of the project's substantial mercury emissions on soils and vegetation were not addressed by either KCPL or DNR. EPA apparently has significant concerns about the Iatan project's mercury emissions, as evidenced by its public comment asking DNR to modify the permit to codify a "mercury neutral" strategy on which it is working."

The guidance document entitled "A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals" includes screening levels for mercury. The Air Pollution Control Program conducted the screening analysis contained within this document and evaluated the impact of mercury emissions based upon the requirements established in steps 3-6 of the document.

"It does not contain a soil inventory and, accordingly, does not evaluate the impact of project emissions on those soils. A proper analysis should generally follow the guidance laid out by EPA in "A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals."

The Air Pollution Control Program completed an evaluation of the impact on plants, soils and animals as outlined in the document entitled "A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals".

"DNR's Modeling Memo acknowledges EPA guidance suggesting that the soils and vegetation analysis should also address the fact that "short-term exposure to elevated NO concentrations alone can cause damage to some sensitive plant species and crops." However, DNR neglects to analyze the potential effects of elevated short-term NO_x exposures caused by the Iatan project's emissions because the current version of the model it was using does not allow the user to calculate concentrations less than one hour. It is unacceptable for DNR to identify a potential concern and then dismiss it without examination."

Under the prevention of significant deterioration guidelines, a facility must submit an air quality analysis for each pollutant it proposes to emit in excess of the *De Minimis* emission levels outlined in 10 CSR 10-6.020(3)(A) Table 1. Due to the required installation of SCR with ammonia injection, the emissions from the project for NO_x will not exceed the *De Minimis* emission levels. Therefore, under PSD guidelines the inclusion of NO_x in the ambient air quality impact analysis is not required.

“Similarly, DNR’s Modeling Memo acknowledges EPA guidance stating that recent studies indicate that synergistic effects of NO_x and SO₂ emissions “can cause vegetative damage at lower concentrations than from a higher exposure to a single pollutant.” Again, however, DNR fails to investigate whether this might be a problem regarding Iatan’s emissions because the guidance document did not give further guidance. It behooves DNR-and KCPL-to examine the scientific literature in order to conduct this analysis.”

Under the prevention of significant deterioration guidelines, a facility must submit an air quality analysis for each pollutant it proposes to emit in excess of the *De Minimis* emission levels outlined in 10 CSR 10-6.020(3)(A) Table 1. Due to the required installation of wet scrubbing systems on the Unit 1 and Unit 2 boilers and the installation of SCR with ammonia injection, the emissions from the project for SO₂ and NO_x will not exceed the *De Minimis* emission levels. Therefore, under PSD guidelines the inclusion of NO_x and SO₂ in the ambient air quality impact analysis is not required.

“There is no indication that eight KCPL or DNR examined the potential impacts of the Iatan project’s emissions on the large collection of state and local parks in the immediate vicinity of the project. Such parks include Little Bean Marsh, Weston Bend State Park, and Lewis and Clark Lake and State Park.”

The Air Pollution Control Program used the highest concentration predicted by the air quality model regardless of location. The use of the highest modeled concentration will yield conservative results that are protective of the soils, plants and animals located with the parks reference above.

“As EPA notes in its comments, the visibility impact analysis performed by DNR should, and does not, assess impacts to visibility based on oxides of nitrogen, primary nitrogen dioxide, soot and primary sulfate. Currently, the visibility analysis is only based on inputs of PM₁₀.”

Under the prevention of significant deterioration guidelines, a facility must submit an air quality analysis for each pollutant it proposes to emit in excess of the *De Minimis* emission levels outlined in 10 CSR 10-6.020(3)(A) Table 1. Due to the required installation of wet scrubbing systems on the Unit 1 and Unit 2 boilers and the installation of SCR with ammonia injection, the emissions from the project for SO₂ and NO_x will not exceed the *De Minimis* emission levels. Therefore, under PSD guidelines the inclusion of NO_x and SO₂ in the ambient air quality impact analysis is not required. The visibility impacts from reductions in NO_x and SO₂ emissions would

only improve visibility near the facility and, therefore, the impacts presented in the modeling analysis represent worst-case impacts for visibility.

“The Ozark Chapter would also like to highlight the fact that both the Level I and Level 2 visibility analyses performed by DNR show significant impacts to visibility from KCPL’s emissions. When the additional impacts of oxides of nitrogen, primary nitrogen dioxide, soot, and primary sulfate are included, these impacts are likely to be even higher.”

The Air Pollution Control Program agrees that the visibility impacts exceed the Class I thresholds outlined in the VISCREEN document. However, there are no mechanisms in place at the Federal or State Level to address this type of impact on Class II areas through permit denial or additional control for visibility impairing pollutants. The reason for the use of the Class I thresholds in the evaluation is there is no guidance for visibility impacts on Class II areas.

Comments III.A, III.B and III.C

Headings: DNR Should Independently Investigate Inconsistencies in KCPL’s Permit Application Indicating Potential Past Modifications to the Iatan Facility

Historic Modifications Should Have Triggered PSD Review

Revised Netting Analysis

Comment: (summarized)

Washington University challenges the validity of the netting analysis by asserting that historical increases in electricity generation and fuel firing rate should have triggered a “major modification” under the prevention of significant deterioration (PSD) requirements. Washington University argues that any major modification would have triggered the BACT requirements, thus drastically reducing the representative historical emission rates for SO₂ and NO_x. Lower representative historical emission rates for SO₂ and NO_x for the existing Unit 1 boiler would affect the netting analysis calculations.

The following excerpts from Washington University’s comment letter present the evidence that Washington University points to with regard to the allegation of a potential past “major modification” at the Iatan power plant.

“2. Increase in Electricity Generation

Evidence pertaining to electricity output and firing rate suggest that KCPL previously modified the Iatan facility without obtaining a PSD permit. The 1977 PSD permit specified a facility with 630 megawatts (MW) of electricity output. Presently, KCPL claims that the Iatan facility is operating at between 720 and 726 MW of gross output. DNR has attempted to explain this inconsistency in gross output by pointing to a de minimis construction permit in 1993 in order to upgrade the Iatan facility’s electrostatic precipitator (ESP). Presumably, this upgrade increased the facility’s net electrical output due to the new ESP’s increased efficiency (and therefore lower electrical

requirements). However, because the ESP is a post-combustion control, the new ESP would not have affected gross electrical output, only net electrical output. Further, the 1993 upgrade would not have increased even the net electrical output by a dramatic 52 MW (726-674), which is enough power to supply the entire auxiliary power load of the unit. KCPL has failed to explain, and DNR has overlooked, this apparent increase in gross electrical output from 630 – 674 MW (depending upon the source) to 720 – 726 MW. DNR should independently verify that KCPL's increased output was not due to an illegal modification.

3. Increase In Firing Rate

Additionally, KCPL is requesting to increase the design firing rate for Iatan Unit 1 from 6,600 to 7,800 mmBTU/hr, claiming that no physical modifications are necessary to accommodate the increase. However, there are two problems with this request. First, there is no support for the baseline heat input of 6,600 mmBTU/hr, which may have been lower. The 1977 construction permit does not contain a heat rate. We were unable to find any basis for this firing rate in a comprehensive review of both DNR's and EPA's files save a note in the initial stack test on the unit reporting a firing rate of 6,600 MMBtu/hr. The gross firing rate could have been smaller. Heat input data reported to the EPA indicates that between 1980, just after the unit started up, and 1990, the firing rate was much lower than 6,600 mmBTU/hr, assuming operation for 8,140 hr/yr. If the permitted firing rate were lower than 6,600 mmBTU/hr, KCPL's baseline emissions are overestimated. Thus, DNR should investigate the regulatory basis for the claimed baseline firing rate, disclose it to the public, and if lower than 6,600 mmBTU/hr, reissue the draft permit for public comment. Second, KCPL has already been frequently operating over the claimed original design firing rate of 6,600 mmBtu/hr since at least 2001 EPA emissions data indicates that the firing rate increased from the range of 5,764 to 6,624 mmBTU/hr during 1995-2000 to: 6,744 mmBTU/hr in 2001, 7,175 mmBTU/hr in 2002, 7,449 mmBTU/hr in 2003, and 7,013 mmBTU/hr in 2004. The EPA noted: that KCPL's "actual measured heat input was over the 6,600 mmBTU/hr threshold 82% of the operating time and periodically above the new 7,800 mmBTU/hr proposed

design rate 21.9% of the operating time in 2003." Furthermore, EPA presently lists the Iatan Unit 1 design firing rate at 7,421 mmBTU/hr, significantly greater than the 6,600 mmBTU/hr baseline claimed in the application. This historic increase in firing rate suggests that KCPL previously modified the Iatan facility.

This is supported by two lines of evidence. First, a Bibb & Associates, Inc. project list made available at the 2002 PowerGen conference in Orlando, FL. This document indicates that Bibb provided engineering services, described as "plant upgrades," at KCPL's Iatan Unit 1. It is unknown whether these "upgrades," disclosed one year after the increase in firing rate, are related to the 2001 increase in firing rate. Second, the operating time (hours per year) reported by KCPL to EPA in Ex. 137 indicates that operating hours dropped significantly in 2000, from 8,138 hours in 1999 to 6,695 hours in 2000 and increased thereafter to historic levels. This would be consistent with an extended outage to modify the facility. We have been unable to find any evidence that the 2001 increase in firing rate was permitted. KCPL has not explained this historic increase in firing rate, which it is now seeking, retroactively, to permit. DNR should

independently verify that KCPL's increased firing rate was not due to an illegal modification and support its investigation in the public record."

Washington University also points to industry-wide non-compliance with PSD "major modification" requirements and indicates that KCPL began construction of Iatan Unit 1 before submittal of the required PSD permit application. These are offered as additional reasons why the netting analysis should be considered invalid.

Response:

The Air Pollution Control Program acknowledges that there has been a trend of increased fuel throughput and electricity generation; however, this does not change the results of the netting analysis for SO₂ and NO_x. This project still yields an emission reduction for both SO₂ and NO_x. The following discussion is intended to put the increases in fuel throughput and electricity generation in perspective and then address the netting analysis issue.

With regard to the fuel throughput, a heat input rate of 6,600 MMBTU/hr has been consistently reported as the maximum hourly design rate in KCPL's emissions inventory and permit application documents submitted to the Air Pollution Control Program. The April 1980 test plan for the initial compliance demonstration tests conducted at Iatan Unit 1 lists 6,600 MMBTU/hr as the design heat input rate – no averaging time is specified. The January 7, 1977 permit issued by EPA does not contain any explicit conditions limiting fuel throughput. Washington University's comment, along with a comment from EPA Region VII, highlighted an over-reporting problem with regard to heat input. The supporting materials submitted with EPA's comment (i.e., clean air markets data) shows that the heat input exceeded 6,600 MMBTU/hr for significant blocks of time in 2003, even after adjusting this data to more closely match heating value analyses of the coal and oil.

The clean air markets data is submitted by KCPL to EPA in accordance with Acid Rain Program requirements. Washington University and EPA Region VII referenced the 2003 clean air markets data and pointed out that the heat input exceeded 6,600 MMBTU/hr. The heat input data reported to the clean air markets database is biased high due to over-measurement of stack gas flow rates. The heat input data reported to the clean air markets database may also be biased high due to an inaccurate F-factor. The F-factor is a parameter used by EPA to relate the volumetric flow rate of flue gas to the heat input rate. For the clean air markets database, KCPL used a default F-Factor which may not match an F-factor calculated based on ultimate analysis of the coal. For more detail about this over-reporting issue and the steps that are being taken to minimize bias refer to the response to EPA Region VII's comment on this subject. It should be noted that the EPA Region VII comments acknowledged that there may be over-measurement by the Part 75 Acid Rain monitors as a result of cyclonic flow, stack wall affects and F-factors.

To correct the bias in the clean air markets heat input data, the Air Pollution Control Program examined heating value analytical results and fuel throughput rates as reported in the 2003 emission inventory questionnaire (EIQ) and performed calculations to adjust the heat input rates. The average heating value of coal fed to the boiler in 2003 was reported as 8,747 BTU/lb; this figure is consistent with expected values for Powder River Basin subbituminous coal. The

heating value of the oil was reported as 137,700 BTU/gallon; this figure is consistent with average heating values for # 2 fuel oil. According to the EIQ - 2,859,884 tons of coal and 387,000 gallons of oil were fed to the boiler in 2003. Using the EIQ heating value and mass throughput figures, the annual heat input for 2003 was calculated as 50,084,122 MMBTU. The summation of the hourly heat input reported to the clean air markets database was 57,021,191 MMBTU. The Air Pollution Control Program contends that 50,084,122 MMBTU is a more accurate estimate of the true heat input for 2003, as compared to the 57,021,191 MMBTU reported to the clean air markets database. The 50,084,122 MMBTU figure is based on heating value analyses of the fuel and mass throughput whereas the 57,021,191 MMBTU figure is based on the F-factor method that relies on biased stack gas flow rate data and theoretical combustion calculations.

For the 2003 heat input data, the Air Pollution Control Program utilized an adjustment factor of 0.8783 (50,084,122 divided by 57,021,191) to derive an adjusted heat input rate for each hour of 2003. Examination of the hour-by-hour adjusted heat input rates for 2003 indicates an annual average below 6,600 MMBTU/hr, but there are blocks of time that are above 6,600 MMBTU/hr. Analysis of the 2004 would data yield similar results.

With regard to electrical generating capacity and production, the FERC Form 1 submittals for the years 1987, 1988, 1990, 2002, 2003 and 2004 indicate that the total installed capacity (maximum nameplate generator rating) remained constant at 726 MW. The turbine-generator nameplate indicates a turbine rating of 673,728 kW and a generator rating of 806,500 kVA with a power factor of 0.90, resulting in 726 MW generation capacity (gross) for the generator. Net generation capacity for the plant remained constant as 670 MW for the FERC Form 1 submittals referenced above. Net generation of electricity and fuel throughput increased during the period covered by these reports – See Attachment R1, KCPL Iatan Unit 1 – Historical Heat Input and Net Generation.

The January 7, 1977 PSD permit issued by EPA indicates that the 1977 permit applies to a 630 MW generating unit. The permit refers to a 1974 Black & Veatch Environmental Report and a 1976 U.S. Army Engineer District, Kansas City, Missouri, Final Environmental Statement as the main documents that were reviewed in this permitting action. In response to public comments, KCPL submitted a page from the 1974 Black & Veatch Environmental Report that indicates Unit 1 “will be designed for a nominal continuous generating capacity of about 630,000 kW (net)”. KCPL states that the 630 MW represented a preliminary value used for permitting purposes and planning, but not necessarily the final design value that was yet to be determined. Washington University referenced the 1976 Final Environmental Statement, p. 1-15, “The steam turbine is technically described as a tandem-compound four-flow 674 megawatt machine”. The latter reference is consistent with the nameplate information of the turbine-generator set, as installed.

According to data sheets submitted with the 1980 stack test results, gross load during the 1980 stack test event averaged 681 MW, while peak load recorded for this stack test was 685 MW. Note that the peak load was 11 MW greater than the nameplate capacity of the turbine and 41 MW below nameplate capacity of the generator. Net power production during the 1980 stack test is estimated at 646 MW. Net power produced equals gross load minus auxiliary load. The auxiliary load is the power required to run equipment at the plant, such as coal handling

equipment, fans, motors, control equipment, etc. 681 MW (gross) minus 35 MW (estimated auxiliary load) equals 646 MW. KCPL indicates that current maximum gross load ranges from 700 to 710 MW; this is consistent with data reported to the clean air markets database.

In 1993 the Air Pollution Control Program issued a permit to KCPL Iatan to install new controls for the electrostatic precipitator (ESP). The new controls for the ESP enabled KCPL to lower the power delivered to the ESP. The 1993 permit contemplated a potential emissions increase of 11 tons per year PM_{10} , based on review of information submitted by KCPL. By lowering the power delivered to the ESP, the auxiliary load decreases and the net power produced increases for a given gross load.

The Washington University comment indicated that Bibb & Associates advertised completion of plant upgrade work at KCPL Iatan. The Air Pollution Control Program contacted Bibb & Associates to see what type of upgrade work they may have been involved with at the Iatan plant. Bibb & Associates personnel indicated that they were involved with an ESP controls upgrade at Iatan.

In summary, circa 1980 the upper end of gross load was approximately 681 MW. Currently, the upper end of gross load ranges from 700 to 710 MW. Historically, this unit has operated above the nameplate capacity of the turbine, but below the nameplate capacity of the generator. As discussed previously, there has been a historical trend of increased fuel throughput and power generation. It is possible that KCPL invested in a modification to get more power out of the turbine, or some other modification to unit, but the Air Pollution Control Program does not have any evidence to support this case. It is also possible that KCPL has simply pushed the turbine beyond its nameplate capacity, or KCPL may have made modifications that would not be categorized as PSD “major modifications”.

If an investigation was to find that and a “major modification” occurred at Iatan Unit 1, this would likely not invalidate the netting analysis for this project. The actual emissions in 2003 and 2004 would not be affected by such a finding and it is questionable that the representative historical emission rates used in the netting calculations would change at all. If an investigation concluded that a “major modification” occurred at Iatan Unit 1 and a decision was made to adjust the representative historical emission rates, the affect of this on the netting analysis is unknown. Regardless of whether there was a past “major modification” to Iatan Unit 1, this project will still result in net emissions decreases for both SO_2 and NO_x . For example, even if the reported SO_2 and NO_x emissions for 2003 and 2004 are biased high by 10 percent because of inaccurate stack gas flow measurements or an inaccurate F-factor. This will result in a net reduction of approximately 10,000 tons per year of SO_2 and 2,500 tons per year of NO_x as a result of this project.

With regard to the last two issues raised by Washington University’s comment III.A. - industry-wide non-compliance and commencement of construction of Unit 1 before applying for a PSD permit – these issues are irrelevant to this project.

Changes to Permit:

Special conditions have been added to ensure compliance with heat input rate specifications indicated in the permit application. These special conditions utilize mass and volumetric feed rates and heating value analyses rather than the CEM-generated heat input figures. See special conditions 20 and 21.

Comment III.D

Heading: KCPL's Emission Calculations for Sulfuric Acid Mist (SAM) are Erroneous and the Proposed Project Will Result in a Net Emissions Increase for SAM

Comment: (summarized)

Washington University asserts that KCPL erroneously calculated future potential emissions of sulfuric acid mist. Washington University calculations for future potential emissions yield a net emission increase of 3,100 tons per year of sulfuric acid mist. Washington University utilizes the KCPL-calculated figure of 587.4 tons per year for Unit 1 existing emissions of sulfuric acid mist. Washington University concludes that BACT requirements apply due to a net emissions increase greater than the PSD significance level of 7 tons per year.

Response:

The calculations provided by Washington University for projected future emission rates are irrelevant since the future potential emission rates used in the netting analysis are based on permit limits. However, while re-examining this issue, the Air Pollution Control Program concluded that the KCPL-calculated figure of 587.4 tons per year for the Unit 1 existing emission rate is probably over-estimated. To answer the question of whether a significant emission increase of sulfuric acid mist will occur as a result of this project, the Air Pollution Control Program is requiring emissions testing of the existing unit and special conditions have been to provide appropriate action, dependent on stack test results.

The following are a few reasons why the Air Pollution Control Program believes that the KCPL-calculated figure of 587.4 tons per year for the Unit 1 is over-estimated. This figure does not account for removal of sulfuric acid mist in the ESP. Significant removal of sulfur trioxide and sulfuric acid mist is likely to occur in the ESP due to the alkaline nature of the fly ash. The magnitude of this reduction is not known; however, the "Updated Method for Estimating Total Sulfuric Acid Emissions from Stationary Power Plants" document (submitted by Washington University as Exhibit 5) applies a technology impact factor of 0.5 for a cold-side ESP (i.e., 50 percent reduction of predicted sulfuric acid emissions). Also, KCPL has reported sulfuric acid mist emissions of 7.2 tons per year for the 2003 Toxics Release Inventory. This emission estimate appears to be based on the "Updated Method for Estimating Total Sulfuric Acid Emissions from Stationary Power Plants" document referenced above and it is probably an under-estimate.

Changes to Permit:

A special condition has been added to require stack testing of the existing unit and make adjustments to the emission limitations if necessary. See Special Condition 22.

Comments IV. B. and IV.C

Headings: Failure of BACT Analysis to Consider Clean Combustion Technologies such as IGCC

KCPL's IGCC "White Paper Is No Substitute for a Legally Mandated BACT Analysis

Comment: (summarized)

Washington University argues that integrated gasification combined cycle (IGCC) should have been considered in the BACT analysis and that KCPL's IGCC "white paper" is no substitute for a legally mandated BACT analysis.

Response:

The PSD permit application submitted by KCPL, and reviewed by the Air Pollution Control Program, was for a pulverized coal-fired boiler. It is the Air Pollution Control Program's position that requiring KCPL to evaluate IGCC would constitute redefining the source and that the BACT requirements are not a channel to redefine the source. Thus, the Air Pollution Control Program did not require KCPL to consider IGCC as part of their BACT analysis.

In making the decision as to whether or not the BACT requirements should include redefining the source as proposed by the application, the Air Pollution Control Program searched EPA's *New Source Review Policy and Guidance Database*, accessed at the following web address, <http://www.epa.gov/region07/programs/artd/air/nsr/nsrpg.htm>. In this database, the Air Pollution Control Program found several EPA documents in which EPA states that they do not consider the BACT process as a means to redefining the source.

In addition, on December 13, 2005, Stephen D. Page, Director of the Office of Air Quality, Planning and Standards for the U.S. EPA issued a letter to a Mr. Paul Plath regarding *Best Available Control Technology for Proposed Coal-Fired Power Plant Projects*. In the letter, Mr. Page states:

"As noted in prior EPA decisions and guidance, EPA does not consider the BACT requirement as a means to redefined the basic design of the source or change the fundamental scope of the project when considering available control alternatives. . . . Therefore, where an applicant proposes to construct a SCPC [Supercritical pulverized coal] unit, we believe the IGCC process would redefine the basic design of the source being proposed Accordingly, Consistent with our established BACT policy, we would not require an applicant to consider IGCC in a BACT analysis for SCPC unit. Thus, for such a facility, we would not include IGCC in the list of potentially applicable control options that is compiled in the first step of a top-down BACT, analysis."

This letter reaffirms the Air Pollution Control Program's original position that IGCC should not be required as part of the BACT analysis.

Comment IV.D.

Heading: Failure to Specify Unit 2 as a Supercritical Boiler

Comment: (summarized)

Washington University correctly points out that the initial rough draft of the PSD permit specified that the Iatan Unit 2 boiler "shall be a supercritical boiler" and that KCPL represented to the Missouri Public Service Commission (PSC) that the Iatan Unit 2 boiler would be a supercritical boiler. Washington University requests a supercritical boiler specification in the PSD permit and argues that this is required as part of the BACT analysis since a supercritical boiler will produce less air pollution per megawatt of electricity generated.

Response:

This differs from the previous discussion regarding IGCC in that KCPL indicated to the Public Service Commission that the Unit 2 boiler would be a supercritical boiler and this affected the July 28, 2005 Report and Order issued by the PSC. The Air Pollution Control Program realizes that a supercritical unit will produce less air pollution per megawatt of electricity generated, and this was part of the reason why an attempt was made to include this specification in the PSD permit. However, consistent with previous discussion on IGCC, the Air Pollution Control Program is not going to take a position that would redefine the source.

Comment IV.E.

Heading: Failure to Conduct BACT Analysis and Set BACT-Based Limits for Opacity

Comment: (summarized)

Washington University argues that the plain language reading of the definition of BACT requires visible emission limitations (opacity limitations) as part of the BACT emission limitations.

Response:

The definition of Best Available Control Technology (BACT) as found in 10 CSR10-6.020(2)(B)5 is as follows:

An emission limitation (including a visible emission limit) based on the maximum degree of reduction for each pollutant which would be emitted from any proposed installation or major modification which the director on a case-by-case basis, taking into account energy, environmental and economic impacts and other costs, determines is achievable for the installation or major modification through application of production processes or

available methods, systems and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of the pollutant.

Based upon this definition, a BACT analysis is supposed to be performed for each pollutant. The definition of pollutant can be found in 10 CSR 10-6.020(2)(P)13:

An air Contaminant listed in 10 CSR 10-6.020(3)(A), Table 1 without regards to levels of emission or air quality impact.

Opacity is not listed in 10 CSR 10-6.020(3)(A) and therefore is not considered a "pollutant" as defined above. If opacity is not considered a pollutant, then based upon the above definition of BACT, a BACT analysis is not required for opacity. Furthermore, opacity requirements were originally placed in the air pollution control regulations as a surrogate measure for particulate matter. This permit requires continuous emission monitoring for particulate matter.

Comment IV.F. – Regarding Sulfuric Acid Mist BACT - See response to comment III.D.

Comment IV.G.

Heading: Failure to Conduct BACT Analysis and Set BACT Limits for Mercury, Beryllium, Fluoride and Total Hazardous Air Pollutants

Comment: (summarized)

Washington University argues that BACT analyses should have been conducted for mercury, beryllium and fluoride. Washington University cites the 9/3/2003 version of 10 CSR 10-6.060 as the applicable regulation, stating that the January 2005 amendments to 10 CSR 10-6.060 have not been approved by EPA and therefore the 2003 version is still applicable.

Response:

The 1990 amendments to the Clean Air Act at section 112(b)(6) exempted HAPs listed under section 112(b)(1) from the PSD requirements in part C. In December 2002 EPA finalized a rule that removed mercury, beryllium and hydrogen fluoride from PSD review and permitting requirements. See page 80240 of the December 31, 2005 Federal Register for further detail. Because Missouri's regulations must not, by statute, be any more stringent than the federal, Missouri regulations were, for all intents and purpose, amended as soon as EPA revised the federal regulation. *Covera v. Conservation Commission*, 973 S.W.2d 851(1998).

In a letter to the Air Pollution Control Program dated December 9, 2005 KCPL volunteered to comply with a mercury limit of 210 lbs/yr for Units 1 and 2 combined. With this voluntary limit there is no increase in mercury emissions expected as a result of this project.

Comment IV. H.

Heading: Failure to Conduct Comprehensive BACT Analysis for Cooling Tower PM₁₀ and Set BACT-Based Drift Efficiency Limit

Comment: (summarized)

Washington University argues that a higher drift eliminator efficiency is warranted as part of the BACT for cooling towers. Reference is made to other recently issued permits to support the argument.

Response:

Upon further review, the Air Pollution Control Program agrees that the attainment of 0.0005 percent drift efficiency is possible through the use of high efficiency drift eliminators. The more stringent efficiency has been incorporated as BACT. Furthermore, special conditions as stringent as those that are found in the following six permits cited by the Interdisciplinary Environmental Clinic at Washington University are included in the final permit.

- Comanche, CO (July 2005)
- Newmont, NV (May 2005)
- Prairie State, IL (April 2005)
- Intermountain, UT (October 2004)
- Rocky Mountain Power, MT (June 2002)
- Indeck-Elwood, IL (March 2002)

Changes to Permit:

See revised Special Condition 8.

Comments V.A. and V.B.

Headings: DNR Should Revise the BACT-Based Emission Limits in the Draft Permit to Reflect the True Capacities of the BACT Technologies

Nitrogen Oxides (NO_x)

Sulfur Dioxide (SO₂)

Comment: See Washington University's December 12, 2005 letter.

Response:

BACT requirements do not apply for NO_x and SO₂ due to the results of the netting analysis. See netting analysis section of permit write-up.

Comment V.C.1.

Heading: Permit Limits for Particulate Matter (PM) DO Not Constitute BACT for Units 1 and 2

Comment Sub-Heading (in italic), Followed by Response:

“The PM BACT Analysis Failed To Consider Wet Electrostatic Precipitator Technology To Specifically Control Condensable PM”

In response to the Air Pollution Control Program’s request, KCPL provided a cost analysis for addition of a wet electrostatic precipitator (WESP). There is still some question with regard to emission rates; however, it does appear that the cost of WESP would be unreasonable. Dependent upon the results of sulfuric acid mist testing for the existing Unit 1 boiler, the BACT cost analysis may be examined further.

“The BACT Technology and Removal Efficiency Should Be Specified”

The technology is fabric filtration (i.e., baghouse) and the removal efficiency will be sufficient to meet the emission limit.

“The Proposed Limits for PM Are Not BACT”

The Air Pollution Control Program is leaving the PM emission limits the same as they were in the November 2, 2005 draft permit. The rationale for the BACT emission limits is stated in the permit review summary and the administrative record for this permit. A consideration that was not explicitly mentioned in the review summary is the fact that filterable particulate matter will be continuously monitored, and compliance with the filterable particulate matter and filterable PM₁₀ emission limits are based on a 3-hr averaging time. The method of compliance monitoring and the averaging time are important considerations when comparing BACT emission limits.

Another piece of information that was reviewed after draft permit issuance is a paper that examined BACT PM₁₀ limits at recently permitted coal-fired power plants, see <http://www.epa.gov/ttn/chief/conference/ei14/session9/andracsek.pdf> . The Air Pollution Control Program believes that the PM₁₀, filterable PM₁₀ and filterable particulate matter emission limits for the Unit 1 and Unit 2 boilers represent BACT.

“Calculation of PM Parameters is Inconsistent”

The Air Pollution Control Program does not agree with Washington University’s conclusion that Special Condition 13.G. conflicts with PS-11.

“Regular Testing to Ensure PM CEM Correlation Should be Required”

Periodic stack testing requirements have been added at Special Condition 12.H.

Comment V.C.2.

Comment Heading: Permit limits for Particulate Matter for Haul Roads Do Not Constitute BACT

Response:

The Air Pollution Control Program believes that the haul road controls represent BACT. See the permit summary for further details.

Comment V.D

Headings: Permit Limits for CO Emissions do not Constitute BACT

DNR Eliminates Details from the Draft Permit Regarding CO Limits

Response:

The Air Pollution Control Program believes that the CO BACT limits are appropriate, as written. The value of the deleted passage regarding the AP-42 emission factors for CO is debatable. It is part of the public record.

Comment VI.A.

Comment (quoted without footnotes):

*“A. The Permit Application and Permit Review Process are Incomplete
Missouri law requires that a facility needing both a construction permit and an operating permit shall proceed through a unified review, hearing, and approval process. The permitting record in this case, however, includes only an application for a PSD construction permit. KCPL has not filed an application for an operating permit for either modified Unit 1 or new Unit 2. Although the law provides for an exemption from unified review upon the written request of the applicant, DNR’s public records contain no such exemption request from KCPL in this case. Therefore, without an application for an operating permit for modified Unit 1 and new Unit 2, KCPL’s PSD permit application is incomplete. As a result, DNR’s permit review, the public hearing, and the entire process are defective and violate the requirements of Missouri law for unified permit review.”*

Response:

The Air Pollution Control Program agrees that the regulation requires an installation to undergo unified review if both a construction permit and operating permit are needed; a written request from the applicant is needed to avoid undergoing unified review (10 CSR 10-6.060 (2)). In this case, the applicant has provided written request that the construction permit and operating permit be reviewed separately. The Application for Authority to Construct contains box no. 18 for applicants to choose whether they desire to go through unified review or to have the construction and operating permit reviews to proceed independently. The applicant provided written request per the Application for Authority to Construct, dated May 12, 2005, and signed by a responsible

official of the company. The Application for Authority to Construct remains part of the material available for public review. No changes to the permit have been made as a result of this comment.

Comment VI.B.

Heading: DNR Appropriately Resisted KCPL's Request to Exempt Startup, Shutdown, and Malfunction (SSM) from the Draft Permit's Emission Limits

Response: See response to KCPL comment on this subject.

Comment VI.C.

Heading: Limits Are Not Expressed in Two Ways

Response:

Pound per hour emission rates can be calculated from the data collected. No additional permit conditions were added.

Comment VI.D.

Heading: The Cooling Tower BACT is Not Enforceable

Response:

See Special Conditions 8.A. through 8.E, cooling tower conditions.

Comment VI.E.

Heading: Stack Test Monitoring Frequency is Inadequate to Ensure Enforceability

Response:

Per revised Special Condition 12.H., stack testing is required once every 2 years for VOC, sulfuric acid mist, lead, hydrogen fluoride, condensable particulate matter and filterable PM₁₀. There are additional periodic accuracy testing requirements for pollutants that are measured by CEMs. The Air Pollution Control Program believes that the testing frequency is adequate to ensure enforceability.

Comment VI.F.

Heading: Monitoring Limits Based on "Average of 3-Runs" Are Inadequate to Ensure Enforceability

Response:

This does not change the emission limits, but the permit language has been changed to “test method average”, rather than “average of 3-runs”.

Comment VI.G.

Heading: Permit Limitations are Necessary to Preserve (Invalid) Netting

Response:

See Special Condition 20 regarding timing of controls v. emissions increases.

Comment VII.

Heading: DNR Has Not Provided Adequate Opportunity for Public Comment on the Draft Permit

Response:

The procedures that the Air Pollution Control Program must follow with regard to public participation are specified at 10 CSR 10-6.060(12)(A) and (B). A public notice was published in the Platte County Newspaper on November 3, 2005. The regulations require a public hearing, if one is requested, to be held no sooner than 30 days and not later than 40 days after the date of publication of a draft permit. The public hearing was held on December 5, 2005. Per regulation, the public comment period was originally scheduled to end at 5:00 on the day of the hearing. However, the program received an extension request and agreed to extend the written comment period to December 9, 2005.

The following comment is a summary of comments received from the Ozark Chapter of the Sierra Club:

Comment:

We feel DNR should deny the proposed permit because of the available environmentally preferable alternatives to this project. The Department of Natural Resources has repeatedly stated that it's their job to balance the health and safety of Missouri citizens and the environment while allowing economic growth. Both federal law and state regulations require DNR to consider environmentally preferable alternatives to a proposed project for a new or modified air pollution source. In this case, the alternatives of energy conservation and renewable energy sources, whether employed independently or in combination, could satisfy KCPL's electricity generation requirements. This can be achieved without substantially and potentially harmful air emissions associated with the proposed Iatan modification and construction permit. DNR must consider these alternatives {as specified in MO regulation 4 CSR 240-22.050 (2)(C)} and deny the proposed Iatan permit in light of the availability of environmentally preferable alternatives.

Response:

The regulations found in Missouri's Code of State Regulations are an attempt to achieve balance between the energy needs of Missouri's consumers and the health and safety of Missouri citizens and the environment, while allowing economic growth. The air regulations found in Division 10 of Title 10 that are applicable to KCPL's Iatan 2 project do not give the state the authority to require use of energy conservation nor renewable energy sources nor energy efficiency when reviewing a permit application. KCPL provided application for a pulverized coal fired boiler. To force KCPL to instead pursue electrical generation through use of windmills or to require energy conservation programs to reduce electricity consumption amounts to redefining the source. Refer to response for IGCC for BACT comment response. No changes have been made to the permit as a result of this comment.

The following responses are responding to testimony presented at the public hearing for KCPL's draft permit. The public hearing was held December 5, 2005 in Weston, Missouri. A lot of comments and concerns raised at the public hearing are addressed in other written comments. Please refer to the comments and responses detailed on the previous pages for a more thorough discussion on some of these issues:

Comments and testimony related to mercury emissions, sulfur dioxides, sulfuric acid mist, PM₁₀ modeling, netting, previous modifications, IGCC:

Response:

Please see response to comments from the Washington University Interdisciplinary Law Clinic on behalf of the Sierra Club starting on page 19 of this document. These responses cover all of these topics addressed at the hearing.

Comments and testimony regarding requiring KCPL to pursue energy efficiency projects:

Response:

Although the department supports energy efficiency and assists industry in energy efficiency projects through the Energy Center, the Air Pollution Control Program's rules and regulations do not grant the authority to require these items through the permitting process.

Comments and testimony regarding noise pollution, aesthetics, diminished property values:

Response:

The Air Pollution Control Program's rules and regulations do not grant the authority to regulate these items through the permitting process.

Comments regarding health effects from pollutants emitted from power plants:

Response:

The Air Program reviewed and issued a permit to Kansas City Power & Light in accordance with all state and federal regulations. These state and federal regulations include air quality standards approved by legislation that review air pollution impacts based on health impacts.

Comments and testimony regarding carbon dioxide emissions and global warming:

Response:

As noted in the review summary for the permit, carbon dioxide is not a pollutant that is regulated under the Clean Air Act and/or Missouri State Regulations. As such, the program does not have authority to regulate carbon dioxide emissions at this time.

Comments and testimony given asking the department - Why are we issuing this permit if so many people are opposed to it?

Response:

The Air Pollution Control Program reviews all permit applications following the requirements set forth in the Clean Air Act. This application was reviewed following the applicable rules and laws.

The following comment was received via email from a County Commissioner.

Comment: Mercury emissions from Iatan 1 & 2 and the safety of fish in nearby waterways

Response:

The responses to previous comments go into more detail on mercury emissions. As stated, the KCPL draft permit required KCPL to meet the current mercury standards. The final permit contains a mercury limit, at KCPL's request, which will limit the mercury emissions from Iatan Unit 1 & Unit 2 to the current level emitted by Iatan Unit 1. For information regarding fish consumption advisories see the following Missouri Department of Health and Senior Services web site. (<http://www.dhss.mo.gov/NewsAndPublicNotices/05FishAdvisory.pdf>)

Comment: Health hazards from Iatan 1

Response:

The permit issued to KCPL contains emission limits and conditions requiring KCPL to comply with health based air quality standards.

Comment: Ozone alerts in Kansas City

Response:

Kansas City is currently in attainment with air quality standards for ozone. Therefore, there was not a requirement to review the impacts from ozone from this application. Due to the location of Iatan 1 with relationship to Kansas City, the prevalent wind direction, and the fact Nitrogen Oxide emissions (a precursor to ozone) are decreasing by thousands of tons, emissions from Iatan 1 & 2 will not be an issue with the ozone levels in Kansas City.